REMARKS

Responsive to the Office Action mailed March 18, 2010, Applicants respectfully request reconsideration and allowance of the application including all claims 3-15.

Status of the Claims

The Office Action reports examination of pending claims 3-15.

Claims 4-7, 10, 11, 14, and 15 stand rejected under 35 U.S.C. § 102(b) as allegedly anticipated by Gropper et al., WO 03/046689 (hereinafter "Gropper").

Claims 3, 9, 12, and 13 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over Gropper in view of Karmalawy et al., U.S. Pat. No. 6,603,991 (hereinafter "Karmalawy").

The Office Action does not articulate any basis of rejection of claim 8.

Claim amendments

The claims are not amended herein.

Some comments on the applied references

Gropper relates to generating worklists of items. An item of a worklist is referred to in Gropper as a "worklist item or order" and such items are added to a worklist by a user placing an order, as described by way of illustrative example at Gropper ¶¶[0046]-[0048].

Multiple such worklists may be maintained, including worklist items or orders for various entities. Of interest here, a modality worklist (206) may be maintained for a particular imaging system. Gropper ¶[0051]. The modality worklist (206) is viewed by a technician who handles orders for the modality. Gropper ¶[0053]. The disclosure pertaining to the modality worklist (206) is limited to two paragraphs – for convenience, those two paragraphs are reproduced in their entireties below:

> [0053] The modality worklist 206 is typically viewed by a technician who handles orders for a particular modality. In some embodiments, information from items in the modality worklist may be transferred to a worklist or data handling mechanism associated with the modality. For example, MRI

systems typically handle a list of jobs to be completed, and patient data associated with each such job within the MRI system. In cases where automatic transfer of this information is impractical or unavailable, the worklist items can be entered into the modality by a technician.

[0054] Once the images are properly scanned by the technician, the status of the worklist item is changed to "imaged". In some embodiments, this causes the worklist item to be made available in a technologist worklist 208, for verification. In some embodiments, the item remains in the appropriate modality worklist 208 to be verified. Some embodiments make items that have a status of "arrived" available in both the technologist worklist 208 and in an the appropriate modality worklist 206.

Gropper ¶¶[0053]-[0054].

There is no suggestion in Gropper that the worklist items or orders of a worklist are in any particular order or sequence. In this regard, please note that the term "order" as indicating a sequence, e.g. an "order of operations" must be carefully distinguished from the term "order" as in "a physician 'orders' an MRI". Gropper ubiquitously uses the term "order" in the latter sense (e.g., "ordering" an MRI); Gropper does not use the term "order" *at all* in the former sense of ordering of items. Nor does Gropper otherwise suggest any particular sequencing of the items in a worklist.

When displaying a worklist, Gropper discloses that the worklist may be sorted based on the viewer's preferences. *See, e.g.* Gropper ¶[0020] ("In some embodiments, the worklist items that are displayed are sorted according to a sort order specified in the set of display attributes associated with the worklist."); *see also* Gropper ¶[0081], [0122], and claim 26. Such sorting of the worklist for display leads away from the worklist having a particular meaningful ordering, since if the worklist items were in some particular meaningful order in the worklist then one would expect to display the worklist using that ordering.

Gropper also discloses that items may be added to a worklist based on urgency of the items (Gropper ¶[0108]) or that a worklist may be restricted to worklist items or orders that are to be performed in a particular time window. Gropper ¶[0109]. Again, neither of these disclosures suggest that the worklist items or orders are ordered in any particular fashion in the worklist.

Karmalawy is cited as (1) disclosing a patient support for moving a patient between two different imaging modalities, and (2) disclosing "modality guidance tools" which determin information should be provided to a technologist during an imaging session to guide a technologist through a properly orchestrated imaging protocol." Office Action mailed June 24, 2009 at page 4.

The claims present patentable subject matter and should be allowed

Claim 6 recites a *control system to control the execution of operational items by the diagnostic imaging system*; and a user interface coupled to the control system, the user interface including *a scheduler module which generates an ordered selection of operational items autonomously ordered by the scheduler module for execution under control of the control system*, the ordered selection being generated by arranging the operational items in said ordered selection of operational items based on parameter settings of the operational items; wherein *the scheduler module is configured to issue instructions to the user prompted by the operational items during the execution of the operational items*.

Claim 6 stands rejected under § 102 as allegedly anticipated by Gropper. A claim is anticipated only if *each and every element as set forth in the claim* is found, either expressly or inherently described, in a single reference. MPEP § 2131. The recited subject matter must be shown in as complete detail as is contained in the claim. *Id.* Where inherent disclosure is relied upon, the extrinsic evidence must make clear that the missing descriptive matter is *necessarily* present in the thing described by the reference; the mere fact that a certain thing *may* result from a given set of circumstances is *not* sufficient. MPEP § 2112.

For at least the reasons set forth below, it is respectfully submitted that the anticipation rejection of claim 6 does not meet this high standard.

Gropper does not disclose or fairly suggest a control system that controls execution of operational items of a worklist by a diagnostic imaging system. The Office Action does not identify what component of Gropper is considered to

correspond to the recited control system of claim 6, but cites Gropper ¶[0053] as allegedly disclosing this subject matter. Office Action mailed June 24, 2009 at page 3.

Gropper ¶[0053] discloses that a modality worklist (206) may be maintained for the MRI, and that worklist items or orders may be transferred between worklists (e.g., "[i]n some embodiments, information from items in the modality worklist may be transferred to a worklist or data handling mechanism associated with the modality."). This does not fairly suggest any sort of control system whatsoever.

Gropper ¶[0053] further states: "MRI systems typically handle a list of jobs to be completed, and patient data associated with each such job within the MRI system." This discloses, at most, that a worklist of jobs (i.e., MRI orders, including associated data such as patient information, procedure start date/time, MRI protocol or so forth, *see* Gropper ¶[0046]) is maintained by the MRI system. Again, no control system as recited in claim 6 is disclosed or fairly suggested.

Still further, Gropper ¶[0053] states: "In cases where automatic transfer of this information is impractical or unavailable, the worklist items can be entered into the modality by a technician." Presumably, "this information" refers to the list of jobs to be completed by the MRI, and patient data associated with each such job. Again, there is no fair suggestion of a control system as recited in claim 6.

Taken as a whole, the disclosure of Gropper ¶[0053] is merely that worklist items or orders that relate to MRI may be transferred, either automatically or manually by the technician, between an MRI worklist and some other worklist. *How* items of the MRI worklist are *executed* by the MRI is not disclosed. This is not surprising, since Gropper is directed to medical data management systems (including image files), and not to MRI control systems. Gropper ¶[0002].

In fact, the only entity mentioned in Gropper ¶[0053] that is at least *capable* of controlling execution of operational items of a worklist by the MRI is the human technician. A reasonable reading of Gropper is that the human technician controls the MRI to execute MRI orders listed on the MRI worklist.

Gropper also does not disclose or fairly suggest a scheduler module which generates an ordered selection of operational items autonomously ordered by the scheduler module for execution under control of the control system. The Office

Action alleges this is disclosed in Gropper ¶[0046]. Office Action mailed June 24, 2009 at page 3.

Respectfully, Gropper ¶[0046] discloses only an order form by which a *clerk* may enter an order for work (e.g., an MRI) to be performed. In making this entry, the *clerk* may optionally include the date and time that the procedure is to start. There is no suggestion of a scheduler module which generates an *ordered* selection of operational items *autonomously* ordered *by the scheduler module* (not by a human clerk) for execution under control of the control system.

To the extent that any given worklist item or order may have an associated time (e.g., a procedure start time), that time is entered in the order form by the clerk or other human user who specifies *manually* when the item or order is to be executed. Gropper ¶[0046]. Manual entry of a start time is *not* an *autonomous ordering*.

Gropper ¶[0046] has a further deficiency. The disclosed manual specification of a time for a given item or order does not disclose or fairly suggest (even in a manual sense) generating *an ordered selection of operational items* ordered for execution under control of the control system. This is because there is no suggestion in Gropper that the (manually entered) time associated with one item has any relationship with the manually entered time associated with any other item.

Indeed, not even an "ordering" that prevents "double-booking" of the MRI is suggested. One might expect that in a modality worklist for an MRI two items *should* not allow two MRI orders be scheduled simultaneously since the MRI presumably can only image one person at any given time – but, since a *human clerk manually* enters the procedure start time, even such "double-booking" is actually a viable possibility for the modality worklist (206) of Gropper.

Still further, Gropper does not disclose or fairly suggest a scheduler module configured to issue instructions to the user prompted by the operational items during the execution of the operational items. The Office Action alleges to find this subject matter at Gropper ¶¶[0009], [0011], [0013], [0014], [0036], [0048], and claims 24 and 26. Office Action mailed June 24, 2009 at page 3.

Applicants do not find a scheduler module *at all* in Gropper. Beyond that basic point, the cited sections of Gropper do not disclose or fairly suggest the further

element of configuration to issue instructions to the user prompted by the operational items during the execution of the operational items. For example, claim 24 merely discloses *displaying* the worklist – not *execution* of items on the worklist (much less issuance of instructions to the user prompted by the operational items during such execution). Claim 26 merely states that the *display* of the work list can be sorted in accordance with some specified sort order – again, this has absolutely nothing to do with *execution* of items of the worklist.

Claim 15 recites a *control system to control the execution of operational items* by [a] diagnostic imaging system *on the basis of an execution list*, and a user interface coupled to the control system, the user interface including *a scheduler module which generates an ordered selection of operational items*, wherein *the scheduler module autonomously orders the operational items* by arranging the operational items in said ordered selection of operational items based on respective parameter settings of the operational items, and wherein *the scheduler module releases operational items to the execution list according to the ordered selection* and *provides progress information* to the user interface during a diagnostic imaging session related to the way the execution of operational items is advancing in the diagnostic imaging session in progress.

Gropper does not disclose or fairly suggest a control system to control the execution of operational items by a diagnostic imaging system on the basis of a worklist. Rather, at most the cited Gropper ¶[0053] passage merely discloses that worklist items or orders that relate to MRI may be transferred, either automatically or manually by the technician, to or from an MRI worklist, without any disclosure of *how* those worklist items are *executed* by the MRI. Indeed, the only entity mentioned in Gropper ¶[0053] that is at least *capable* of controlling execution of operational items of a worklist by the MRI is the *human technician*.

Gropper also does not disclose or fairly suggest a scheduler module which generates an ordered selection of operational items [and] releases operational items to the execution list according to the ordered selection and provides progress information to the user interface during a diagnostic imaging session related to the

way the execution of operational items is advancing in the diagnostic imaging session in progress. Rather, Gropper discloses a clerk or other human user *manually* assigning a procedure start time for an MRI procedure. The MRI procedures (assuming more than one is listed in the modality worklist of Gropper) are not necessarily performed in accordance with the manually entered procedure start times, because there is no module (e.g., scheduler module) in Gropper that releases operational items to the execution list according to the ordered selection (which, as per claim 15, ensures that the ordered selection of operational items is actually followed).

Regarding the recitation of "...and provides progress information...", the Office Action alleges this subject matter is disclosed in Gropper ¶[0054] and claim 18. Gropper ¶[0054] is quoted herein above, and states: "Once the images are properly scanned by the technician, the status of the worklist item is changed to 'imaged'". This discloses providing "progress information" only *after* the imaging session is complete, and does not relate to the way in-progress diagnostic imaging is progressing. Claim 15, in contrast, recites the scheduler module "provides progress information to the user interface *during* a diagnostic imaging session *related to the way the execution of operational items is advancing* in the diagnostic imaging session *in progress.*"

Still further, Gropper does not disclose or fairly suggest the scheduler module *autonomously* orders the operational items by arranging the operational items in said ordered selection of operational items based on respective parameter settings of the operational items. As already discussed respective to claim 6, at most Gropper discloses *manual* assignment of procedure start times.

Claim 9 recites a control system to control the execution of operational items by the magnetic resonance imaging system; a user interface coupled to the control system, the user interface including *a scheduler module which generates an ordered selection of operational items for execution controlled by the control system*, wherein the scheduler module *autonomously orders* the operational items by arranging the operational items in said ordered selection of operational items based on respective parameter settings of the operational items; and a displaceable patient support; wherein the control system is set up to displace the patient support among various

imaging stations and conduct several different magnetic resonance imaging sequences at individual imaging stations, the control system grouping all image acquisition sequences to be performed at each individual station together and performing all image acquisition sequences to be performed at each individual station together before the patient support is moved to a next station of the various imaging stations.

Claim 9 stands rejected as allegedly unpatentable over a proposed combination of Gropper and Karmalawy. Applicants respectfully traverse as set forth below.

Gropper does not disclose or fairly suggest a scheduler module which generates an ordered selection of operational items for execution controlled by the control system. Rather, Gropper discloses a clerk or other human user manually assigning a procedure start time for an MRI procedure. Moreover, Gropper does not disclose or fairly suggest a scheduler module that *autonomously* orders the operational items by arranging the operational items in said ordered selection of operational items based on respective parameter settings of the operational items. Rather, at most Gropper discloses *manual* assignment of procedure start times.

In rejecting claim 9, Applicants note that the Office Action mailed June 24, 2009 implies that claim 9 recites a substantial amount of subject matter (for example, the scheduler module "configured to issue instructions") which is not actually recited in claim 9. In this regard, the Office Action also acknowledges that Gropper fails to teach "patient displacement among the various imaging modalities", thus implying that claim 9 recites "patient displacement among the various imaging modalities" or some equivalent verbiage.

However, claim 9 actually recites the control system is set up to displace the patient support among *various imaging stations* and conduct several different *magnetic resonance imaging sequences* at individual imaging stations, the control system grouping all image acquisition sequences to be performed at each individual station together and performing all image acquisition sequences to be performed at each individual station together before the patient support is moved to a next station of the various imaging stations.

Claim 9 thus does not recite *multimodality* imaging, but rather recites multi-station magnetic resonance imaging in which the magnetic resonance imaging sequences are conducted at various imaging stations.

Applicants respectfully submit that Gropper *also* fails to teach multi-station magnetic resonance imaging, and further respectfully submit that Karmalawy cannot remedy this deficiency in Gropper because Karmalawy discloses *multimodality* imaging, but not multi-station magnetic resonance imaging as recited in claim 9.

Patentability of independent claims 6, 9, and 15 are argued herein. The dependent claims are patentable at least due to the argued patentability of the independent claims. Further, it is respectfully submitted that the dependent claims present further bases of patentability, which in the interest of brevity are not addressed by further argument herein.
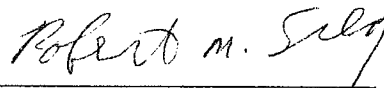
CONCLUSION

For the reasons set forth above, it is respectfully submitted that claims 3-15 present patentable subject matter and meet all statutory requirements. Accordingly, Applicants earnestly request allowance of claims 3-15.

In the event that personal contact is deemed advantageous to the disposition of this case, the Examiner is requested to telephone the undersigned at (216) 363-9000.

Respectfully submitted,

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